The Detroit Conrail Greenway: A case of urban wilderness and placemaking

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The city is an ecological system; the urban environment is a natural phenomenon, a habitat, a medium of expression, and a forum for action. This framework is examined using an advanced design studio studying urban wilderness--fragments of nature in a city--responding to processes of human-nature interaction. The study examines how ideas of nature influence the way spaces are perceived, designed, built, and managed; how natural processes and urban systems interact and what are the consequences for health, placemaking, and ethics. Given these conflicting attitudes and logics, how can architects identify opportunities to develop strategies for incorporating diverse habitats into the built environment? How can these habitats not only perform as such but also produce public resonance and visibility in the city?

The studio investigates these questions by considering the Detroit Conrail Greenway (an 8.3-mile long abandoned Conrail railroad property and a key part of the recently conceived Inner Circle Greenway in Detroit) as a case study. Using human-nature relationship and ecological well-being, the goal of the project is to explore placemaking through integration of density, mobility and open space. Students engage at multiple scales of Southeast Michigan, Detroit, and the green corridor, from proposing urban, landscape, and infrastructural interventions to developing comprehensive ecological system of the “urban wilderness.” The studio outcomes range from alternate transport system, phytoremediation addressing brownfield issues, and medium density housing proposals as part of transit-oriented developments. Through the projects, sustainable urbanism is conceived as an ecological model of public health, placemaking, and social ethics.

Keywords: urban ecology; Detroit; green infrastructure; urban wilderness; placemaking; human-nature integration
INNER CIRCLE GREENWAY: BACKGROUND AND STUDIO OVERVIEW

The Detroit Inner Circle Greenway (ICG) is a transformative transportation and economic development project that forges connections across dispersed Detroit-area neighborhoods long separated by freeways and underserved by disjointed transit. Through the development of 31.5 miles of pedestrian and bike paths, the Inner Circle Greenway will connect to local and regional transportation systems, creating a continuous loop from the Detroit River to Eight Mile Road (Figure 1). The Inner Circle Greenway will link to 186 miles of existing non-motorized bike lanes and bike routes to complete a total of 243 miles of safe, non-motorized routes across greater Detroit, connecting five cities directly – Detroit, Dearborn, Hamtramck, Highland Park and Ferndale – and expanding access to several more. Transforming the existing fragmented transportation system, the Inner Circle Greenway acts as a spine bringing life to the existing non-motorized and transit network. Most significantly, this project will improve economic competitiveness, enhance quality of life for residents, and leverage recent investments.

In 2016, the Advanced Design Studio focused on the issue of Detroit’s urban transformation: de-industrialization, wilderness, and re-densification, by preparing an urban design and development proposition for the Detroit Conrail Greenway by (1) envisioning a new and alternate transportation system, (2) re-imagining green infrastructure public space projects, and (3) rethinking new forms of medium-density development. In this Advanced Design Studio, students examined urban wilderness: fragments of nature in a city and respond to processes of human-nature interaction: how ideas of nature influence the way spaces are perceived, designed, built, and managed; how natural processes and urban systems interact and what are the consequences for health, placemaking, and ethics. Given these conflicting attitudes and logics, the focus was on testing: How can architects and urban designers identify opportunities to develop strategies for incorporating diverse habitats into the built environment? How can these habitats not only perform as such but also produce public resonance and visibility in the city? This studio investigated these questions by considering buildings, major urban structures, and infrastructure as opportunities for design and appropriation, to enable co-species habitation. Students developed design projects at multiple scales, from proposing interventions to developing comprehensive ecological system of the “urban wilderness.”

The project builds on the Inner Circle Greenway (ICG) proposal in Detroit, a recently conceived planning effort by the City of Detroit for a 31.5 mile loop of greenway, a system of off-street and on-street networks of protected bike lanes connecting adjacent communities to jobs, schools, and public services (City of Detroit, 2015). Within the geographic context of the ICG, the studio will focus on the Conrail part of the greenway, a blighted, abandoned section of the former Conrail railroad right-of-way. The studio will complement present efforts by the City and organizations like the Detroit Greenways Coalition by focusing on planning and design options on the Conrail section through a pedagogic framework of Urban Wilderness, examining interrelationships between nature and the city. Students will explore diverse urban strategies including mobility, open space, and density to develop planning and design proposals at multiple scales.

The studio will operate as a hybrid studio with online student meetings throughout the semester, site visits to Detroit and Chicago in September and October 2016, and several lectures and
interaction sessions with project partners in Detroit. The outcome of the option studio and course seminars will be subject to a graphic novel publication.

Figure 1: Map of the Detroit Inner Circle Greenway. Courtesy: City of Detroit
STUDIO HYPOTHESIS

The studio involved specific profiles of ecology and health. The city is an ecological system; the urban environment is a natural phenomenon, a habitat, a medium of expression, and a forum for action. The working hypothesis of the studio is that sustainable urbanism as an ecological model of public health, placemaking, and social ethics. Within this context, the studio is framed by two critical aspects within questions of sustainable urbanism relevant to urban wilderness: human-nature integration and ecological well-being.

Human-Nature Integration
The relationship between human development and conceptual continuity of the natural environment is considered a core issue, and at the heart of the definition of ecology. The center of any decision-making of sustainable urbanism needs to stress the full integration of human existence and the environment (human-nature integration). The need to understand our environment as a finite closed ecosystem is paramount to this integration, as well as defining human involvement as participation in, rather than controlling of, that environment. The concept of place is critical to this understanding. Within the formal framework of political processes, social ideologies and morphological typologies, quality of place exists as a perspective of everyday actions as effects and responses, rather than a static category. Human-nature integration addresses the ecological concern of “balance” and “fitness,” an evolutionary process marked by the mutual interaction among species and between species and environment (Spencer 1864).

Ecological Wellbeing
Setting priorities around the concept of “human well-being” as a multifaceted approach to health and welfare. Well-being is defined by physical thriving, social justice, and social hope encompassing health of context in all its richness, including health of individual and health of community (Adhya et al, 2010). There are powerful synergies between sustainable development, social hope, social justice and equity at the community level as well as globally. There are also strong connections between these factors and thriving physically. Clean, green, and attractive neighborhoods fostering safe and strong communities, improving the quality of life, and harboring biodiversity should be accessible to everyone irrespective of race, class, creed, and color. Questions such as those of energy, transport, climate change, and waste cannot ignore the issues of social equity and justice. This involves ecological resilience, capacity, fitness, and diversity (Neuman, 2005).

STUDIO PEDAGOGIC GOALS AND METHODOLOGY

The graduate studio was structured around three interconnected goals of research, process, and proposition. Design methodology and tactics were derived based on this structure. First, research of existing condition was an important step in the studio. Students observed, documented, and analyzed different types of urban wilderness (open space) and its relationship with human occupation (density) using the Conrail right-of-way as a fragment of nature in the city. This established the basis of the design process.

Second, design and decision-making process was critical. Specifically, students used an ecology-based methodology to explore human-nature integration, its underlying principles, and its
inherent opportunities specifically through questions of density and open space in the abandoned Conrail right-of-way. This allowed the students to develop alternate propositions based on specific research positions and design strategies to test and push those positions.

Third, proposition and dissemination of specific outcomes were crucial. Students designed a multipurpose greenway system intervening at multiple scales of human occupation based on existing patterns and critical ecological framework of density and open space. Propositions were presented at the urban scale of the Inner Circle Greenway and Conrail right-of-way as well as the neighborhood/district scale of specific nodes on the greenway around critical assets.

DESIGN OBJECTIVES

The first objective of the studio was to develop a robust green infrastructure. The intention was to develop a green infrastructure network that performs as (a) active and passive recreation resource (regional, city, and neighborhood public spaces) and (b) ecological resilience resource (storm water management, phytoremediation), and (c) public health resource (physical and psychological benefits for people). Specific strategies include: parks and parklands, wetland configuration, bio-remediation, phytoremediation, soft-engineering, storm-water management strategies, native plants and animal rehabilitation.

Figure 2: Green infrastructure case studies

Figure 3: Medium density mixed use built form case studies.
The second objective was to project density as a tool of urban development. The strategy was to formally develop critical nodes of the greenway corridor through transit-oriented developments (T.O.D.) to leverage construction and sustenance of open space infrastructure. This can be imagined as mixeduse development including diverse forms of medium density housing. Strategies include Transit Oriented Development, mixeduse development, pedestrian friendly development, and affordable housing.

![Dequindre Cut Greenway. Detroit, Michigan. Courtesy: City of Detroit](image1)

![The Cycle Snake. Copenhagen, Denmark](image2)

Figure 4: Mobility options case studies.

The third and final objective was to inculcate a comprehensive culture of mobility. The philosophy was to provide reliable, safe, and affordable choices of mobility for communities vital to accessing transit, jobs, training centers, neighborhood services, and civic amenities including the Downtown and the Detroit River. This is crucial in order to mitigate the barrier created by lack of transportation choices, lack of car ownership, poverty, and major employment locations outside city limits. Strategies include protected on-street and off-street bike lanes as first choice of non-motorized transit in the city.

These three objectives provide an armature for design in the context of critical issues of access to socio-economic opportunities available to different sections of demographics as seen below in the following info-graphic.

<table>
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<tr>
<th>URBAN POOR</th>
<th>URBAN MOBILITY</th>
<th>URBAN EMPLOYMENT</th>
<th>REGIONAL COMMUTE</th>
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<td>39%</td>
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Figure 4: Social demographics related to socio-economic factors and accessibility in Detroit, Courtesy: U.S. Census and Data Driven Detroit, 2016.
STUDIO FINDINGS AND OUTCOMES

The Inner Circle Greenway is a 31.5 mile pedestrian and bike path that connects Detroit to a region wide system of pedestrian trails. The Conrail portion of the ICG is an 8.3 mile missing link in the trail. The site is a former freight rail line that transported materials and resources for producing automobiles in Detroit. The rail line and adjacent property were left abandoned when manufacturing left the city of Detroit at the end of the 20th century. Today the abandoned property is overgrown, polluted and prone to vagrancy (Figure 5).

Figure 5: Abandonment and overgrowth along the Detroit Conrail Greenway. Courtesy: Marvin Shauni

Public health
Pollution and contaminants are present on the Conrail site because of the materials that were transported along the rails, as well as the materials that were used to build the rail. Creosote, lead, arsenic, and many other toxins can be found in the soil on the property. The contaminants are also present in the soil on adjacent industrial properties, which in many cases have also been abandoned.

For decades this contamination problem has been ignored. However, many neighborhoods are adjacent to these former industrial sites and the rail line. The ground contamination has spread and continues to spread into the soils underneath neighborhoods and into the ground water. The spread of pollutants not only effects the surrounding neighborhoods and residences but anyone in contact with soil, water or air in the city. The effects of this can be seen in Detroit health data:
there are higher cases of asthma, lead poisoning and cancer within the city. However, nothing is being done to protect the residences or the ecology in these areas (Figure 6).

This project identifies two distinct typologies along the Conrail trail and solutions that addresses soil contamination based on typology. The typologies include dense neighborhood and large scale vacant industrial (Figure 7).

First, the neighborhood typology occurs in areas where there is dense single family housing close to the trail. This area on the Conrail path is bounded by Warren Ave to the South and Jeffries Fwy to the North. In this area the top layer of contaminated soil is removed and replaced with clean soil. The edges of the Conrail property act as a protective barrier between the contaminated soil below and the residential properties. New development through renovation and single family housing infill is encouraged in this area. Medium density infill occurs in vacant lots adjacent to the trail. These units will have retail at the ground level to provide convenient shopping locations for the neighborhoods (Figure 8).
Second, in large scale industrial areas the vacant land is planted with fields of flowers that clean the soil using phytoremediation. This zone is minimal maintenance wilderness that provides habitats for local wildlife. A few select areas are programmed in strategic locations for human activity as well, but the main purpose of this zone is to promote ecological stability.

The typology of the third zone is again large scale industrial vacancy, however, it occurs in a wetland area. This area is utilized as a large scale storm water management system. It operates in similar ways as the wildflower zone: phytoremediation, habitats for wildlife, and designated space for human interaction with nature. The pedestrian path in this area is elevated above the wetland to provide a separation between the contaminated land and human interaction. Recreational opportunities are available in this area such as kayaking, fishing, and ice skating.

These three solutions seek to address the land contamination problems facing a large area of Detroit. This is a problem that was created by man and thus must be solved by man. Throughout the 20th century mankind sought to conquer nature, however, we now realize that the best.
Greater greenway connectivity is an important factor in the Conrail Greenway proposals. This will exponentially multiply opportunities for biking and non-motorized movement in the city. Biking culture is on the rise in Detroit, with the city topping the list of cities in the United States with the biggest increase in bicycle commuters (McLead 2015). This is reflected in cycling trends like the weekly Slow Roll events with upwards of 4,000 participants, increase
in investment in on-street biking infrastructure, and development of off-street biking proposals, healthy living initiatives through running, bicycling and bicycle safety like the Tour De-Troit, and 34 documented neighborhood and church based bicycle clubs. The design proposals sought to capture this momentum in biking culture to develop a comprehensive mobility network that becomes an everyday component of living in the city. Biking thus become a lens to think about neighborhoods, healthy living, and connection to a quality place and processes of placemaking.

Figure 9: Courtesy: Josh Bremer, 2016

Social ethics
Within the topical framework, students discovered ways of designing for human occupants by considering how non-motorized transit can improve everyday life, while simultaneously providing for the needs of non-human occupants. Urban infrastructure thus becomes an opportunity to address questions of safety, convenience, and accessibility. Furthermore, understanding this infrastructure as urban wilderness implies that fundamental necessities like healthy food and affordable shelter should be accessible to different sections of society.
Figure 10: Courtesy: Gabriel Ramirez and Rachel Kowalczyk, 2016.
IMPLICATIONS FOR URBAN LIVABILITY

When defining livability and sustainability in architecture through ecology, a set of priorities can be clearly identified through the tripartite framework developed and explored (Figure 11). The variables were chosen for coverage and broadness rather than precision in discussions of livability and sustainability. Each variable term was connected to as many variations of outcomes possible and then delved for their own connection to the objectives. Analysis revealed that human-nature integration and human well-being played an important role in providing access to ecological concerns, with “public health,” “placemaking,” “wilderness,” “accessibility,” and “biodiversity” playing important parts to generate built forms and open space designs for urban livability.

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<th>GOALS</th>
<th>OBJECTIVES</th>
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<td>Research</td>
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<td>Capacity</td>
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<td>Diversity</td>
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<td>Landuse</td>
<td>T.O.D.</td>
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Figure 11: The tripartite framework of research, process, and proposition for the design studio in relation to design objectives, study variables, and design outcomes.
Many sustainable priorities, as inferred through design exploration, are clearly shared between disciplines involved in the human habitat development. Human health is at the core of many of the design and development intentions of sustainable design proposals. All disciplines address this through several dimensions beyond just life safety, physical health, clean air, clean water and waste removal. The less tangible issues of “self-esteem” and “belonging” are also present (Haggerty 1999), issues at the core of place making. In addition, there seems to be a trend developing which could address the inherent separation of human and nature. This is the understanding of the purpose of sustainable design as “habitat development” rather than “built environment construction.” As such, sustainable development begins to address systems-based content and multi-occupant (including non-human) presence.

While aspects of these priorities are present in current dialogues of livability and sustainable development, cultural conceptualizations interfering with success are also present. We postulate that sustainable architectural design should understand its disciplinary priorities through human well-being, integrated fitness landscapes, social development, and social hope. Sustainable architecture can thus be imagined as manifestation of spatial composition that supports a broad definition of public health and social ethics in place. Formal, policy, economic, and technological elements would be applied as tools as part of an integrated multi-dimensional, multi-scalar infrastructure. This ecological approach can be catalytic in promoting sustainability as a shared “dialogic space,” (Shneekloth & Shibley 1995) where things can function in relation to others, and among various critical agencies of the society.
Bibliography


